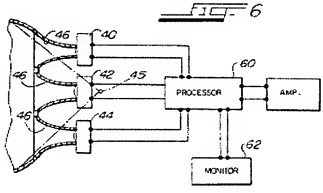
REMARKS

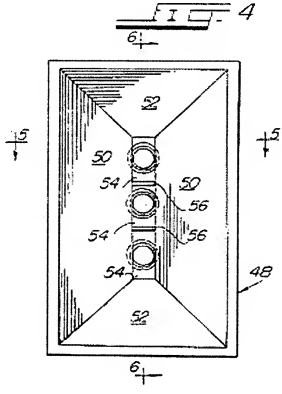
In a final Action mailed 20 April 2007 the Examiner reasserted his rejection of claims 1-3, 10-12 and 14 as anticipated under 35 USC 102(a) over Danley, U.S. 4,845,759. Similarly, claims 4-9, 13 and 15 were again rejected under 35 USC 103(a) for obviousness. The obviousness rejections were based on Danley '759 in view of Ohta, US 2001/0016045 (claims 4, 5, 9 and 15) and Danley '759 in view of Danley, US 6,411,718.

Claims 1, 2, 3, 6 and 10 have been amended. Claim 5 has been cancelled. The amendments are directed to clarifying the claims and to better define the issues for appeal of the present case and do not raise new issues. Claims 1-4 and 6-15 remain active.

It is clear from reading the Action that the applicant and the Examiner are far apart in their understanding of the relevance of the applied prior art, particularly the Danley reference, US-P 4,845,759 and the meaning to be given to terms used in the claims. One point of difference relates to the meaning of the "folded horn" with respect to which the Examiner has asserted that "there are not universal guidelines as to the degree of bend in a horn that is required . . . to be classified as a folded horn". The Examiner further contends that the Danley '759 patent shows a "folded horn" based on "the horn shown in Fig. 6 [which] comprises numerous bends in the throat". A folded



horn is defined in the McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition (2003) as "an acoustic horn in which the *path* from throat to mouth is folded or curved to give the longest possible path in a given volume". (Emphasis added) The Examiner has incorrectly focused on bends in the walls of the structure shown in Fig. 6. While bends in the walls of a horn are a necessary condition to define a bend in the acoustic path, their existence alone is not sufficient to assure that the path is bent. The walls may be bent merely to set the flair angle.



Danley '759, Fig. 4, shows a "clear shot" from the diaphragms of the device, through the throat, to the mouth. For a horn to be "folded" it must reduce the overall dimensions of the structure which forms the horn. Beranek, *Acoustics*, pp. 278-279 (McGraw-Hill,1954), states that "A horn loudspeaker for use at low frequencies is very large and long, because [the flare constant] must be small for a low cutoff frequency and the area of the mouth must be large to radiate sound properly. As a consequence, it has become popular to "fold" the horn so that it will fit conveniently into the home." A horn, such as that shown in which the diaphragms can be seen by looking directly into the mouth of the horn cannot be "folded" because nothing has been done to reduce the dimensions of the structure which defines the path between the throat and the mouth. The Danley '759 device shows a straight acoustic path and accordingly fails as an anticipating reference for Claim 1 which requires a "folded horn".

Claim 1 has been amended to more clearly define structure which supports reinforcement of an acoustic wave in a synchronized for constructive reinforcement of the acoustic wave as it moves along the summing throat toward the horn mouth. In claims 2 and 10 this is termed a "cascade buildup". The term cascade is defined in Webster's Unabridged Dictionary of the English Language (Random House (2001)) as an arrangement of component devices, each of which feeds the next in succession. The Examiner implicitly asserts that Danley '759 teaches a cascade buildup of an acoustic pressure wave (or front) at col. 2, ln. 67 to col. 3, ln. 15). Per the definition of cascade, the output of one device provides the input to the next device. Simply staggering acoustic sources as shown in Fig. 2 of Danley '759 does not achieve this result. Danley '759 contemplates that the sound sources act mutually as inputs to one another. If it were a cascade device, or a device in which the propagating sound wave was "constructively" reinforced, the "line" spacing between the sources would be irrelevant except as a matter of adjusting phase. But Danley '759, to the contrary, teaches that the spacing between the sound sources is *critical*. Beginning at col. 2, line 33, Danley states "the effective size and spacing between the sound sources along the line is also critical. The spacing and effective size in this direction *must* be such as to allow adjacent sound *dispersion patterns* to overlap and complement each other." (Emphasis supplied) If dispersion patterns are to complement one another the allowed spacing between the sources (and the size of diaphragms) is a function of the frequencies to be reproduced. These factors are utterly irrelevant to the present invention. Danley is a variation on a traditional line array which exhibits both constructive and destructive interference to produce a steerable output (see Danley '759, col. 3, ln. 1-15), while the present invention is directed to achieving high output energy (see paragraph [0002]. While arranging the transducers in a line was preferred at the time of filing of the present invention, doing so was not seen as essential (paragraph [0006]).

The Examiner further asserts that Danley '759 shows "an extended acoustic port (fig. 4, #54) having a constant cross-sectional area from each high pressure chamber (fig. 6, #46)". The Examiner has erred in construing slots 54 as "extended ports". Referring first to the present specification the term "extended" refers to length of the port in the direction of acoustic propagation. The term "elongated" as used in reference to slots 54 refers simply to their vertical height, that is, a direction perpendicular to the direction of sound propagation. Hence the slots are not "extended" in the sense of the ports called out in the claims based on the appearance of the word "elongated". While the slots are described by Danley as "restricted openings", there is no teaching that "restricted" means they constrict air flow from throats 46 to horn 48. The term "restricted" appears instead to refer to the slot being "preferably less [in width] than one wavelength of the highest frequency to be produced" (Danley '759, col. 3, ln. 35-40). Considering Figs. 5 and 6 it certainly does not appear that slots 54 represent any sort of constriction or reduction in cross sectional area over the final dimension of throats 54. That being the case, the throats, which the Examiner identifies as high pressure chambers, cannot serve as high pressure chambers. This is because the outlet/slot/"port" from the so-called "chamber" does not constrict air flow out of the "chamber" which the specification and claim 10 require. Danley's "chambers" appear to have an increasing cross-sectional area (See fig. 6).

Slots 54 are explicitly constricted only in terms of their width, and then only in reference to wavelength of output radiation, not in reference to the dimensions of an adjacent throat. No restriction is placed in the specification on the height of the slots. Given the outward "bends" in walls of throats 46 extend beyond the apparent point of merger of the throats (See Fig. 6) it appears that at least the upper and lower slots continue to expand vertically, meaning that they do not have constant cross sectional areas. (Here it is assumed that walls 56, shown in Fig. 4, are used only between adjacent horns and were omitted from Fig. 6.

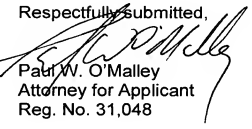
Finally, the area of merger of dispersion patterns in Danley '759 does not correspond to a summing throat or section as defined in the present invention. In Figs. 4, 5 and 6 all of the sources are spaced equally distant from the mouth of the horn, not serially closer. Even considering the staggered linear array of Fig. 2, which is not shown with a horn, the sources are intended to operate in parallel with the dispersion patterns of adjacent sources acting mutually on one another. There is no cumulative or cascade pressure wave resulting from adding the inputs one by one. The output is the result of simultaneous merger of the outputs of all of the sources.

In comparing the present invention to Danley '759 it is essential at all times to keep in mind that the present invention is directed to long, bass range, wavelengths, which are characterized by isophasic wave front propagation through a horn while Danley is a mid-range frequency device concerned with the constructive and destructive interference patterns associated generally with line array. Put another way, if the wavelength to be produced is large relative a horn's physical length, then a single parameter propagation results and a bent acoustic path is allowable as isophasic propagation follows the contours of the waveguide. If the wavelengths are short (as in Danley) relative to the horn's physical length, then the wave propagates as a three parameter wave and the waveguide path is relevant to the directionality of the center acoustic axis. More simply put, folded acoustic path horns are deprecated for use at mid to high frequencies because of the resultant distortion they introduce. The "folded horn" limitation of claim 1 is not a hollow one. The very fact that Danley talks about disposition of the sound sources with reference to dispersion patterns indicates that he wouldn't have used a folded acoustic path device.

The remaining dependent claims recite still further elements distinguishing the invention over the prior art.

Applicant believes the Claims are in condition for allowance and respectfully requests favorable action by the Examiner.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that I caused this Amendment to be mailed to the Commission for Patents on or before _18 June 2007.

Date: 18 June 2007

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